



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/758,427  | 01/14/2004  | Xiaohong N. Duan     | 10541-1829          | 5655             |
| 29074   | 7590        | 08/30/2005           | EXAMINER            |                  |
| VISTEON<br>C/O BRINKS HOFER GILSON & LIONE<br>PO BOX 10395<br>CHICAGO, IL 60610 |             |                      |                     | BONCK, RODNEY H  |
|   |             | ART UNIT             |                     | PAPER NUMBER     |
|   |             | 3681                 |                     |                  |

DATE MAILED: 08/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                             |                     |  |
|------------------------------|-----------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b>      | <b>Applicant(s)</b> |  |
|                              | 10/758,427                  | DUAN ET AL.         |  |
|                              | Examiner<br>Rodney H. Bonck | Art Unit<br>3681    |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 15 July 2005.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1 and 4-7 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1 and 4-7 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

|   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>05/23/05</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

The following action is in response to the amendment received July 15, 2005.

### ***Information Disclosure Statement***

Receipt is acknowledged of the Information Disclosure Statement filed May 23, 2005. The cited documents have been considered.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zanetel et al.('098) in view of Porter('654) and Gronau et al.('812). The Zanetel et al. device discloses a hydraulic coupling system comprising a pump 13 and a clutch assembly 25, the pump pressuring a fluid to engage the clutch and pumping fluid to cool the clutch. A valve 37,38 maintains fluid pumped to the actuator at a higher pressure than the pressure of the fluid pumped through the clutch for cooling. The Zanetel et al. device does not appear to show a controller, and does not appear to specify that clutch 25 is a multi-disk clutch. Porter, however, discloses a hydraulic coupling system wherein the clutch 114 is a multi-disk clutch wherein actuation and cooling are controlled by pulse-width modulated valve 72 under the control of controller 68. It would have been obvious to provide a controller in Zanetel et al., the motivation being to control clutch actuation and cooling. Alternatively, it would have been obvious to control the pressure of the cooling fluid in Porter to be less than the clutch actuation pressure, as taught by Zanetel et al. Note, too, that Porter discloses the use of a gerotor pump. The Zanetel et al. patent does not appear to specify how the pump is driven, and, while Porter discloses that pump 78' can be electrically driven, there does not appear to be disclosure of transmitting pulse-width modulated signals to the pump from the controller. The Gronau et al. device is a hydraulic system wherein pulse-width modulated signals are sent to the electric drive 150 of the pump as well as to hydraulic circuit control valves. It would have been obvious to use a pulse-width modulated pump in Zanetel et al., as modified in view of Porter, or alternatively in Porter, as modified in view of

Zanetel et al., the motivation being to provide continuous adjustable control of the pump delivery rate, as taught by Gronau et al.

Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zanetel et al.('098) in view of Porter('654) and Gronau et al.('812) as applied to claim 1 above, and further in view of Ackermann(US 2003/0089573 A1). Ackermann provides an accumulator in a hydraulic clutch actuation system to maintain fluid pressure in the clutch chamber and compensate for fluid leakage in the system. It would have been obvious to similarly employ the accumulator 104 of Porter, the motivation being to prevent system deterioration from leakage. The valve 72 of Porter can be considered a two-way valve and a pilot valve, and the pressure maintained by the accumulator can be considered a preload pressure.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Harries(US 2002/0046913 A1) provides pulse-width modulation of pump 223 (Figs. 1 and 3). Nakamori et al.('402) shows duty-cycle controlled, electrically-driven pump 8. Yant('9220 is cited for its teaching of providing duty-cycle control of an electrically-driven pump to extend pump operating life.

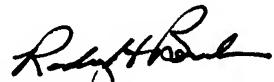
***Response to Arguments***

Applicant's arguments with respect to claims 1 and 4-7 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney H. Bonck whose telephone number is (571) 272-7089. The examiner can normally be reached on Monday-Friday 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A. Marmor can be reached on (571) 272-7095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Rodney H. Bonck  
Primary Examiner  
Art Unit 3681

rhb

August 25, 2005